Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1 - 13. (Canceled).

14. (Currently Amended) A method for transmitting an optical signal from a sending station to a receiving station, wherein a plurality of one or more relay stations are disposed between the sending station and the receiving station, the method comprising:

receiving a transmitted signal at one of the relay stations as a received signal;

separating the received signal into a plurality of bands;

adjusting each band to produce a plurality of adjusted bands, including at least one of amplifying optical signals comprising each band in accordance with predetermined optical intensity parameters and adjusting a gain tilt of each band in accordance with predetermined gain tilt parameters;

combining the adjusted bands to produce a transmission signal;

transmitting the transmission signal to a second relay station or to the receiving station; and

repeating the above steps at one or more of the relay stations;

wherein the optical intensity parameters and gain tilt parameters are calculated based on a deviation of optical signal-to-noise ratios (OSNR) degradation caused by Stimulated Raman Scattering (SRS).

15. (Original) The method of claim 14 wherein the optical intensity parameters and the gain tilt parameters are determined based on transmission characteristics of all spans of optical fiber disposed between the sending station, the relay stations, and the receiving station.

16. (Canceled).

17. (Currently Amended) A method for transmitting an optical signal from a sending station to a receiving station, wherein one or more relay stations are disposed between the sending station and the receiving station, the method comprising:

storing optical intensity parameters and gain tilt parameters in a memory store;

receiving a transmitted signal at one of the relay stations as a received signal;

separating the received signal into a plurality of bands;

adjusting each band to produce a plurality of adjusted bands, including at least one of amplifying optical signals comprising each band in accordance with the optical intensity parameters and adjusting a gain tilt of each band in accordance with the gain tilt parameters;

combining the adjusted bands to produce a transmission signal; and

transmitting the transmission signal to a second relay station or to the receiving station,

the gain tilt parameters and the optical intensity parameters being determined based on a deviation of optical signal-to-noise ratios (OSNR) degradation, the deviation being calculated based on the transmission characteristics of all spans of optical fiber disposed between the stations,

~~the optical intensity parameters being determined based on the transmission characteristics of all the spans of optical fibers~~ including for each span determining stimulated Raman scattering (SRS) induced variations, occurring at a receiving end of the span, of signal intensities in an optical signal based on the signal intensities of the optical signal as they occur at a transmitting end of the span.

18. (Original) The method of claim 17 wherein determining SRS-induced variations further includes computing a sum of signal intensities as they occur at a transmitting end of the span for all wavelength bands which comprise the optical signal.

19. (Currently Amended) Apparatus for transmitting optical signals comprising a sending station, one or more relay stations, and a receiving station, each relay station comprising:

a demultiplexer having an input portion for inputting a received optical signal and an output portion for outputting a plurality of bands;

a plurality of optical circuits, each having an input portion for inputting one of the bands, a control input portion for receiving signals representative of optical intensity parameters and gain tilt parameters, and an output portion for outputting an adjusted signal produced by adjusting the band in accordance with the signals received at the control input portion; and

a multiplexer coupled to the output portions of the optical circuits, the multiplexer having an output portion for outputting a transmission signal comprising the adjusted signals from the optical circuits,

the gain tilt parameters and optical intensity parameters being determined based on a deviation of optical signal-to-noise ratios (OSNR) degradation, the deviation being calculated based on transmission characteristics of all spans of optical fiber disposed between the stations,

~~the optical intensity parameters being determined based on the transmission characteristics of all the spans of optical fibers~~ including, for each span, stimulated Raman scattering (SRS) induced variations of signal intensity of an optical signal at a receiving end of the span, the SRS induced variations being dependent on the signal intensity of the optical signal occurring at a transmitting end of the span.

20. (Original) The apparatus of claim 19 further including a data store configured to store the gain tilt parameters and the optical intensity parameters, the data store operatively coupled to the optical circuits to provide the optical intensity parameters and the gain tilt parameters.

21. (Currently Amended) Apparatus for transmitting an optical signal from a sending station to a receiving station, wherein a plurality of one or more relay stations are disposed between the sending station and the receiving station, the method comprising:

means receiving a transmitted signal at one of the relay stations as a received signal;

means separating the received signal into a plurality of bands;

means for adjusting each band to produce a plurality of adjusted bands, including at least one of amplifying optical signals comprising each band in accordance with one or more optical intensity parameters and adjusting a gain tilt of each band in accordance with one or more gain tilt parameters;

means for combining the adjusted bands to produce a transmission signal; and

means for transmitting the transmission signal to a second relay station or to the receiving station,

the gain tilt parameters and the optical intensity parameters being based on a deviation of optical signal-to-noise ratios (OSNR) degradation, the deviation being based on transmission characteristics of all spans of optical fiber disposed between the stations, including, for each span, stimulated Raman scattering (SRS);

~~the optical intensity parameters being based on the transmission characteristics of all the spans of optical fibers~~.

22. (Original) The apparatus of claim 21 wherein the optical intensity parameters are further based on, for each span, determining stimulated Raman scattering (SRS) induced variations of signal intensity of an optical signal at a receiving end of the span, the SRS induced variations being dependent on the signal intensity of the optical signal at a transmitting end of the span.

23. (Previously Presented) The method of claim 14 further comprising compensating a level variance between the adjusted bands with an optical filter that is wavelength dependent with regard to light transmission characteristics.

24. (Previously Presented) The method of claim 17 further comprising compensating a level variance between the adjusted bands with an optical filter that is wavelength dependent with regard to light transmission characteristics.

25. (Previously Presented) The apparatus of claim 19 further comprising a gain tilt controller for compensating a level variance between the adjusted bands, the gain tilt

controller comprising an optical filter that is wavelength dependent with regard to light transmission characteristics.

26. (Previously Presented) The apparatus of claim 21 further comprising means for compensating a level variance between the adjusted bands that is wavelength dependent with regard to light transmission characteristics.

27. (New) The method of claim 14 wherein the OSNR degradation is calculated for optical signals to be received at the second relay station or the receiving station.

28. (New) The method of claim 17 wherein the OSNR degradation is calculated for optical signals to be received at the second relay station or the receiving station.

29. (New) The apparatus of claim 21 wherein the OSNR degradation is calculated for optical signals to be received at the second relay station or the receiving station.

30. (New) The method of claim 14 wherein the deviation is calculated based on sectional area of one or more fibers coupling the one or more of the relay stations, an effective distance in which SRS occurs, and a Raman gain coefficient.

31. (New) The method of claim 30 wherein the deviation is stored in a table configured to contain respective output intensity of each band of optical signals to be amplified.

32. (New) The method of claim 17 wherein the deviation is calculated based further on sectional area of one or more fibers coupling the one or more relay stations, an effective distance in which SRS occurs, and a Raman gain coefficient.

33. (New) The method of claim 32 wherein the deviation is stored in a table configured to contain respective output intensity of each band of optical signals to be amplified.

34. (New) The apparatus of claim 19 wherein the deviation is calculated based further on sectional area of one or more fibers coupling the one or more relay stations, an effective distance in which SRS occurs, and a Raman gain coefficient.

35. (New) The apparatus of claim 34 wherein the deviation is stored in a table configured to contain respective output intensity of each band of optical signals to be amplified.

36. (New) The apparatus of claim 21 wherein the deviation is calculated based on sectional area of one or more fibers coupling the one or more relay stations, an effective distance in which SRS occurs, and a Raman gain coefficient.

37. (New) The method of claim 36 wherein the deviation is stored in a table configured to contain respective output intensity of each band of optical signals to be amplified.